TR-101
User Manual

Ver 1.12

Table of Contents

1. Introduction

TR-101 is a personal remote positioning device with built-in GPS and GSM modules; it's compact and portable. TR-101 can transmit the longitude and latitude coordinate to your cell phone by the short message service. There are three speed-dial keys and one emergency key on the TR-101. You can use these features for protecting and searching children and old persons. Further, you can use it as a security purpose and other purpose which needs remote positioning.

2. Features

1. GPS personal locator.
2. GSM/SMS communication.
3. Omni-directional high sensitivity GPS antenna which can receive GPS signal from all direction.
4. New technology and latest GPS SiRF-Star III chipset! Excellent for fixing the position even at a weak signal status.
5. Receive phone calls to have two way communications.
6. Monitors can track the person without interfering him, LIVE! Real-Time tracking!
7. Locate the locator holder by the mobile phone via SMS (short messaging system).
8. Three quick dialing buttons for 3 preset phone numbers.
9. Works worldwide! Support 4-frequency GSM 850/900/1800/1900 MHZ.
10. SOS button send out exact location for immediate rescue/action.
11. Independent SOS (emergency) button which will send GPS location information via SMS for up to 3 preset numbers (it can be 3 sets of different numbers than the 3 sets of quick dialing numbers).
12. Device can be connecting to PC by using a USB cable for setup the arguments (package comes with mini USB cable when you purchase the device).
13. Low battery notification before the battery dies out! Worrying free on why the locator wouldn't respond for this kind of situation!

3. Specification

Hardware

|	
GSM module:	embedded GSM 850/900/1800/1900 MHz
GPS Chipset:	SiRF Star III
Frequency:	L1, 1575.42 MHz
C/A code:	1.023 MHz chip rate
Channels:	20 channel all-in-view tracking
Antenna Type:	Omni-directional GPS antenna
Position:	10 meters, 2D RMS
Velocity:	0.1 m/s
Time:	1 us synchronized to GPS time
Default datum:	WGS-84
Reacquisition:	0.1 sec., average
Hot start:	1 sec., average
Warm start:	38 sec., average
Cold start:	42 sec., average
Altitude:	18,000 meters (60,000 feet) max.
Velocity:	515 meters/second (1000 knots) max.

Acceleration:	Less than 4g
Jerk:	20 m/sec3
Operating temperature:	-20 ° to 60 ° C
Humidity:	5% to 95% Non-condensing
Dimension:	115 mm × 45 mm × 22.5 mm
Voltage:	Rechargeable and replaceable 1300 mAh battery (3.7V), 5V for charging input.
Charging connector:	DC 5V
Standby time:	Over 100 hours
Talking time:	5 ~ 6 hours
LED:	3 LEDs showing Power, GPS and GSM status.
Key:	7 Keys for Power On/Off key, Emergency key, Intimate call * 3, Lock key and Answer/Reject key.
USB port:	Mini USB port for connecting to PC.

4. Start-up

4.1 Accessories

1. TR-101
2. 1300 mAh Li-ion Battery
3. Mini USB cable
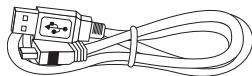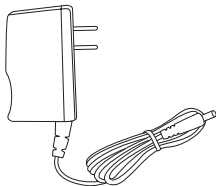4. AC power adapter
5. CD-ROM
6. Leather case (Optional)

1
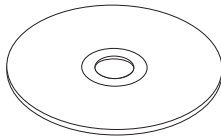
2

Li-Ion Battery

3

4

5

6

5
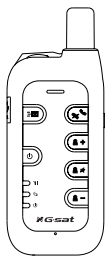
4.2 Charging the battery

Before you can use the TR-101, you must complete the following procedures:

1. Fully charge the battery. Before your first time using of TR-101, please connect it with AC power adapter for battery charging at least

    10 hours under the power-off condition. (The included battery is specially designed for TR-101. Please do not use other type of battery,

    otherwise it will damage the device. If you need to change the battery for TR-101, please contact you local dealer.)

2. Install the SIM card. Please see the steps below in this page.

3. Complete the software setup. Please refer to chapter 6 for details.

4.3 Install SIM card

Install SIM card:

1. Press on the battery cover, then pull it downward to open it.

2. Remove the battery.

3. Insert the SIM card into the cartridge according to the direction shown, and close the cartridge when done.

4. Put back the battery, and close the battery cover.

5. Hardware Overview

5.1 Appearance

SOS button

Speaker

Power button

Answer / Hang up

Quick dial 1 / Volume up

Quick dial 2 / Mute the microphone

GSM LED
GPS LED
Power LED

Quick dial 3 / Volume down

Microphone

Button Lock

Power adapter jack

Mini USB connector

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5.2 Button description

|	
Power button	**Turn on:** When the device is off, press the Power button for 3 seconds, three LEDs will start to flash quickly from top to bottom. It will enter the standby mode with blue LED flash slowly after the startup process is finished. (During the startup process, it can not be turned off.) **Turn off:** When the device is on, press the Power button for 3 seconds, three LEDs will start to flash slowly from bottom to top. When the LEDs go out, it indicates that the device is turned off for sure.
SOS button	You can assign up to 3 sets of phone numbers to the SOS button. When this button is pressed, TR-101 will send it's location information to these 3 sets of phone numbers by SMS. TR-101 will first call the SOS number 1 and send the location information by SMS. Following, TR-101 will repeat the same procedure to SOS number 2 and 3.
Answer / Hang up	When there is a incoming call, press this button to answer the incoming call. While in talking, press it will hang up the phone.
Quick dial 1 / Volume up	You can set a phone number for this button; when this button is pressed, TR-101 will dial the preset number. While in talking, you can press this button to increase the volume.
Quick dial 2 / Mute the microphone	You can set a phone number for this button; when this button is pressed, TR-101 will dial the preset number. While in talking, the other party will not hear from you if this button is pressed to mute the microphone; press it again to enable the microphone.
Quick dial 3 / Volume down	You can set a phone number for this button; when this button is pressed, TR-101 will dial the preset number. While in talking, you can press this button to decrease the volume.
GSM LED	LED is on: TR-101 is turned on, but not connected to GSM network yet. Blinking quickly (once per second): TR-101 is in dialing or talking mode. Blinking slowly (once per 3 seconds): TR-101 is in the standby mode.
GPS LED	The LED will be blinking when TR-101 is fixing its location. When location is fixed, the LED will be on for a few seconds and then goes out.
Power LED	The LED will be orange when AC adapter is plugged for charging the battery. If the battery power is low, this LED will be on in red.
Power adapter jack	Plug in the Power adapter to TR-101's power adapter jack for battery charging.
Mini USB connector	Connecting TR-101 to PC by a Mini USB cable, you can setup all its features and functions from an application software in PC.
Button Lock	Switch to lock all the buttons for the purpose of preventing buttons from been accidentally touched. (Only the power button is not lockable. When Button Lock is on, the LED indicators will flash 3 times if any other button is pressed.)

6. TR-101 Setup Wizard
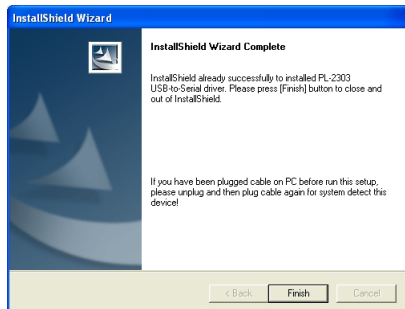
6.1 Install the USB driver

1. Insert the CD into CD-ROM drive. When the autorun dialog box is displayed, click on "Install USB Driver" button to install the TR-101 driver.
2. You will see dialog box 1, click on **Next** to continue.
3. When installation is complete, click on **Finish** to close the dialog box 2.
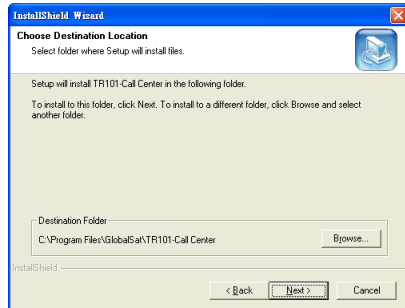

Dialog box 1

Autorun Dialog box

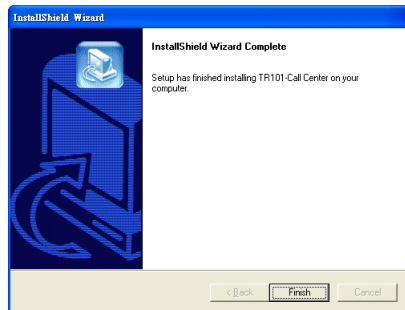*Dialog box 2*

9
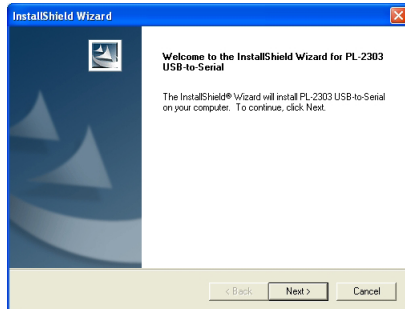
6.2 Install the Setup Wizard program

1. From the autorun dialog box, click on the "Install PC Software" to install the Setup Wizard program.
2. Follow instruction in dialog box 1 to continue the installation.
3. When the installation is complete, click on **Finish** in dialog box 2 to close the dialog box.
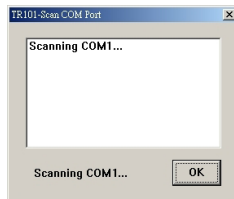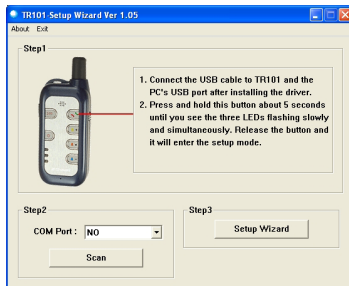

Dialog box 1

Autorun Dialog box

Dialog box 2

10

6.3 Basic Setting

1. Connect the USB cable to TR-101 and the PC's USB port after installing
   the driver.

2. Turn on the power of TR-101:

   (i) Please wait for a while until the startup process is finished.

   (ii) Press and hold the "Answer/Hang up" button about 5 seconds until you
   see the three LEDs flashing slowly and simultaneously. Release the button
   and it will enter the setup mode.

3. Start the TR-101 Setup Wizard program in your PC (or double click on the
   "TR101-Setup Wizard" icon from desktop).

4. Click on the **Scan** button to scan the COM port for which TR-101 is connected.
   When the scan process is finished, click on **OK** and it will automatically set the
   correct COM Port.

5. Click on the **Setup Wizard** button to open the setup dialog box.

6. The Setup Wizard will guide your through to complete the settings.

Note: If your SIM card has the PIN code protected, a
dialog box will pop up first to ask you to enter the PIN.
(Be careful when you enter the PIN code. Normally, if you
enter the wrong code for 3 times, the SIM card will be
locked. If you do not know the PIN code or it has been
locked, please consult with your SIM card provider.

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TR101-Setup Wizard

Module IMEI : `355632000090333`

Module IMEI :
The IMEI (International Mobile Equipment Identity) is a unique 15-digit code used to identify an individual GSM mobile station to a GSM network. IMEI numbers of cellular phones connected to a GSM network are stored in a database (EIR - Equipment Identity Register) containing all valid mobile phone equipment.

User Name : `John Smith`   [Input the user name here.]

[Set Time Zone]   `[GMT-06:00) Central Time(US & Canada)`

Set the time zone in TR101. When TR101 is triggered to send back a SMS, the time showed in the SMS will be the time of the time zone that you specified here.

Firmware Version : `0001`

[Back] [Next] [OK] [Cancel]

TR101-Setup Wizard

SOS Number :
You can assign up to three sets of phone numbers for TR101. TR101 will send it's location information to three sets of phone numbers by SMS.

⚠ Important notice :
Since TR101 will send the SMS to these 3 phones, please enter the cell phone number here; do not enter a home phone number which can not accept the SMS.

SOS Number 1 : [ ]
SOS Number 2 : [ ]
SOS Number 3 : [ ]

⚠ Important notice :
If the TR101 is located in a different country, please add a country code in front of the phone number. If you did not set the country code here, TR101 may not make a successful call.
Example : +886936888888

[Back] [Next] [OK] [Cancel]

TR101-Setup Wizard

Quick Dial 1 : [ ]
Quick Dial 2 : [ ]
Quick Dial 3 : [ ]

Quick Dial :
You can set three phone numbers for TR101.
TR101 will dial the preset number.

⚠ Important notice :
If the TR101 is located in a different country, please add a country code in front of the phone number. If you did not set the country code here,TR101 may not make a successful call.
Example : +886936888888

[Back] [Next] [OK] [Cancel]
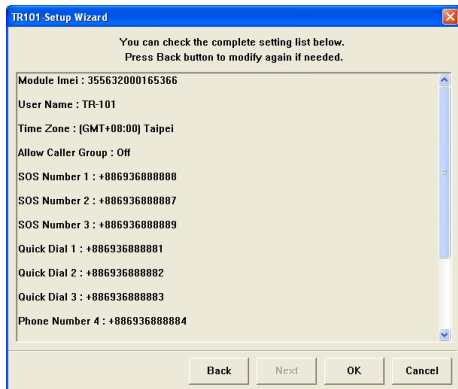

TR101-Setup Wizard

Allow Caller Group : `Off`

Off mode :
TR101 will respond to all incoming voice or SMS.
On mode :
TR101 will only respond to the incoming voice call or SMS which is from the phone list showed in below.

⚠ Important notice :
If the incoming call is a voice call, TR101 can answer it.
If the incoming call is a SMS, TR101 will return the coordinates information back by SMS.

Quick Dial 1 :	+886936888881	Phone Number 6 :	+886936888886
Quick Dial 2 :	+886936888882	Phone Number 7 :	+886936888887
Quick Dial 3 :	+886936888883	Phone Number 8 :	+886936888888
Phone Number 4 :	+886936888884	Phone Number 9 :	
Phone Number 5 :	+886936888885	Phone Number 10 :	

[Back] [Next] [OK] [Cancel]

TR101 Setup Wizard

You can check the complete setting list below.
Press Back button to modify again if needed.

Module Imei : 355632000165366

User Name : TR-101

Time Zone : [GMT+08:00] Taipei

Allow Caller Group : Off

SOS Number 1 : +886936888888

SOS Number 2 : +886936888887

SOS Number 3 : +886936888889

Quick Dial 1 : +886936888881

Quick Dial 2 : +886936888882

Quick Dial 3 : +886936888883

Phone Number 4 : +886936888884

Back   Next   OK   Cancel

1. The whole setting is listed here for you to check again. If you still need to modify some setting, please click on **Back** button to do so.

2. When everything is done, click on **OK** button to save the setting to TR-101.

Note:

The returned SMS from TR-101 to your mobile phone will be the following format: (example)

```
Position Report:
TR101
2005/01/02 11:20:30
24.9965,121.4877
GPS fixed
```

• The second line shows your User Name (default is "TR101").
• The third line contains the date and time. (yyyy/mm/dd hh:mm:ss)
• The fourth line contains the longitude and latitude. You can copy this value and input it to "Google Earth" or maps.google.com to find this position on map.
• The fifth line indicates "GPS fixed" or "GPS not fixed". (If it is "GPS not fixed", then the information of third and fourth lines will be the one from last time GPS fixed.)

7. Operating the device

7.1 Turn on / Turn off

● **Turn on:** When the device is off, press the Power button for 3 seconds, three LEDs will start to flash quickly from top to bottom. It will enter the standby mode with blue LED flash slowly after the startup process is finished. (During the startup process, it can not be turned off.)

● **Turn off:** When the device is on, press the Power button for 3 seconds, three LEDs will start to flash slowly from bottom to top. When the LEDs go out, it indicates that the device is turned off for sure.
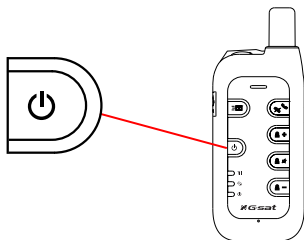

7.2 Answer / Hang up the phone

● When there is an incoming call, press this button to answer the incoming call.
● While in talking, press it will hang up the phone.
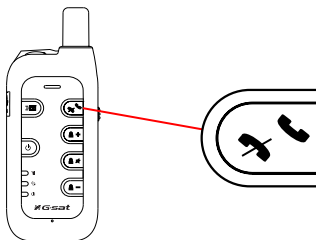
7.3 Adjust the volume

● While in talking, you can press the "+" button to increase the volume.
● While in talking, the other party will not hear from you if the mute
   button is pressed to mute the microphone; press it again to enable the
   microphone.
● While in talking, you can press the "-" button to decrease the volume.
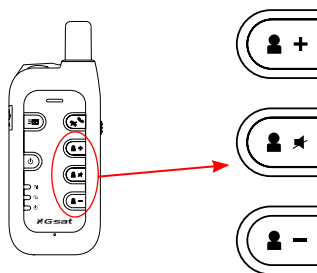
7.4 Making a phone call

● If you have already setup the Quick dial number, then you can press
   the Quick dial button to make a call to the preset number.
   If you want to press the button to make a quick dial , please press the
   button for over **1** second and release.

Quick dial 1

Quick dial 2

Quick dial 3

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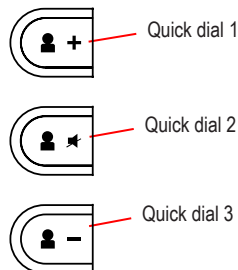
7.5 Send out emergency SMS

● If you have already assigned 3 sets of phone numbers to the SOS button, press this button on the TR-101 will send out it's location information to these 3 sets of phone numbers by SMS.

To avoid accidentally touching of this button, when you want to send out the emergency SMS, please make sure you press this button for over **2** seconds and release.

● TR-101 will first call the SOS number 1 and send the location information by SMS. Following, TR-101 will repeat the same procedure to SOS number 2 and 3.
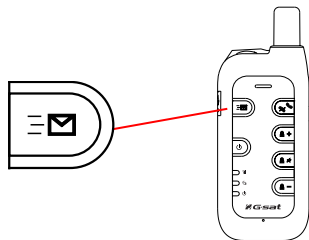
ⓘ *How does it work when you press the SOS button?*

1. To confirm that you have pressed SOS button correctly, TR-101 will followed by long flash the red LED about 2 times.

2. TR-101 will start to position itself with green GPS LED flashing; when the GPS position is fixed, the LED will be on.

3. Then, TR-101 will turn off GPS and green LED goes out.

4. TR-101 begins to send SMS with blue LED flash once per second.

5. When it finished sending SMS, the blue LED comes back to standby mode with flash once per three seconds.

6. If the SMS has been sent out successfully, TR-101 will again long flash the red LED about 2 times.

8. Tracking by SMS mode

8.1 Send SMS from a cell phone to TR-101

• Send a short message to TR-101 to trigger it for sending back the location information. (The message content can be anything, even a blank message.)

8.2 TR-101 sends SMS to cell phone

• When TR-101 receives a short message, it will return the location information by SMS in the following format.
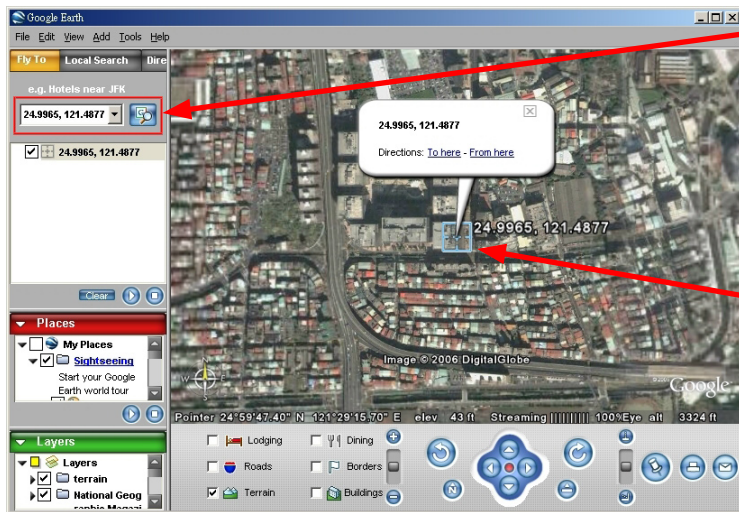
```
Position Report:
TR101
2005/01/02 11:20:30
24.9965,121.4877
GPS fixed
```

8.3 Displaying the location on map

● Start the Google Earth software. (For more information about the Google Earth software, please refer to "TR-101 Supporting User Manual En_Free Google Earth Software.pdf" which you can find them in the CD-ROM under the "Manual" folder.)

Input the latitude and longitude that you received from SMS and click on search button.

The Google Earth will display the location map for you.

● Or you can start the Internet Explorer and type "http://maps.google.com" to connect to Google Map website for displaying the location map.
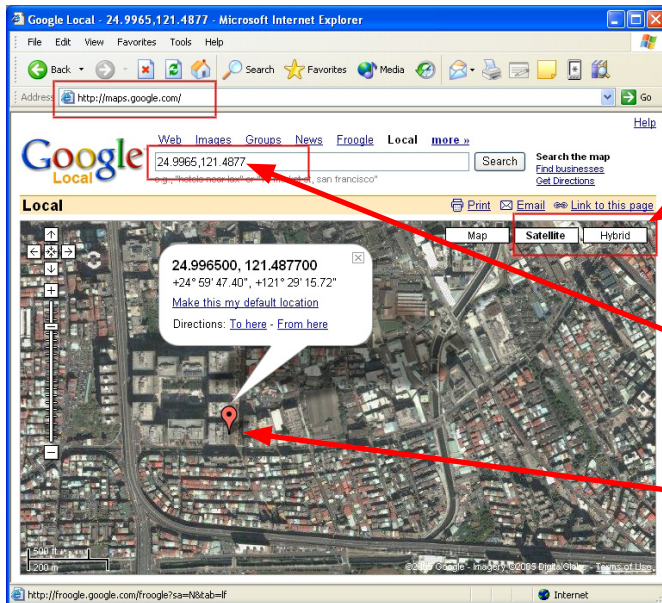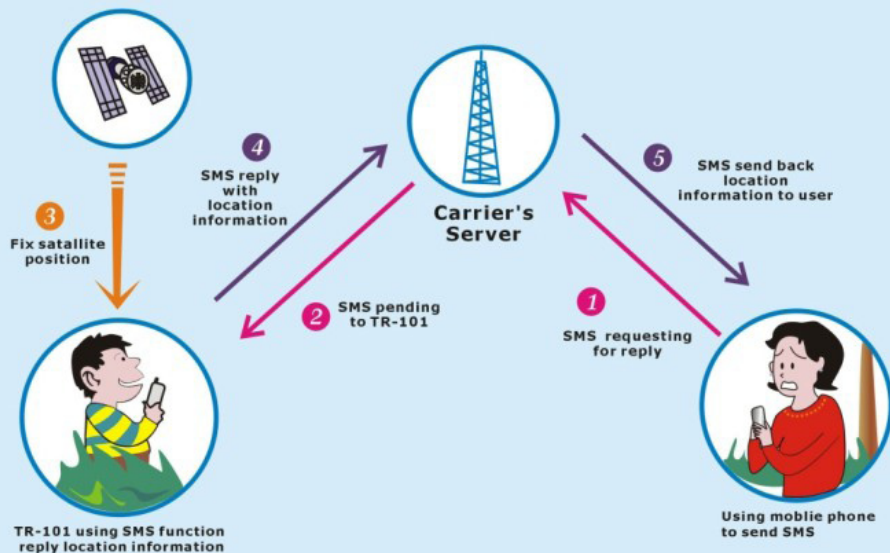

Select "Satellite" or "Hybrid". It depends on Google Map whether your area is supported by this mode or not.

Input the latitude and longitude that you received from SMS and click on **Search** button.

The Google Map will display the location map for you.

9. How does TR-101 work by SMS?

How exactly does TR-101 works (SMS)

④ SMS reply with location information

③ Fix satallite position

Carrier's Server

⑤ SMS send back location information to user

② SMS pending to TR-101

① SMS requesting for reply

TR-101 using SMS function reply location information

Using moblie phone to send SMS

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10. Troubleshooting

status	cause	solution
After you turn on the power of TR-101, the three LEDs are flashing simultaneously.	The SIM card is not inserted.	Please insert the SIM card into TR-101.
	The SIM card is inserted in the TR-101, but it has the PIN code protection enabled and the PIN code is mismatched.	Please take out the SIM card, use your mobile phone to disable the PIN code protection and then insert the SIM card back to TR-101. Then you will not be asked the PIN code in the Setup mode. Or connect the TR-101 to PC and enter the setup mode of Call Center program to input the correct password.
After you turn on the power of TR-101, the Blue GSM LED is on.	The signal is too weak.	Please move to a location where there is a stronger signal.

► For more information about the **Google Earth software**, please refer to "TR-101 Supporting User Manual En_Free Google Earth Software.pdf" which you can find it in the CD-ROM under the "Manual" folder.

► In general situation, it needs about 4 ~ 5 hours to fully charge the battery under the power-off condition. If you charge the battery under the power-on condition, it may need longer charging time depending on different usage mode.

► There is a little tenon on the rubber cover of TR-101 USB port (please see the right figure). You have to press it a little harder downward to close it firmly. There will be a click sound if you do the right way.

► Please do not connect TR-101 to AC power adapter during its startup process, otherwise it can not be turned on properly.

► If TR-101 can not be turned off properly, please open the battery cover and remove the battery for at least 3 seconds. Put the battery back and then restart it.